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two-thirds of the present volume. The work concludes with the usual "repertorium," index of species, and a complete index of genera in all volumes. The generic index is printed on differently colored paper. Some suggestions regarding the diagnosis and nomenclature of species printed in the first pages of the volume aim to bring about some uniformity in the publication of species. As these rules have been published in several journals,[4] it is unnecessary to repeat them here.—H. HASSELBRING.

A book for young gardeners.—A booklet prepared by H. D. HEMENWAY,[5] the director of the School of Horticulture at Hartford, Conn., will prove helpful to those interested in home and school gardens. Aside from simple discussion of the objects and benefits of tillage, the preparation of the soil, and planting the garden, the booklet furnishes abundant and detailed directions for testing and saving the seeds of the more common flowers and vegetables, for the planting of trees, the making of hot-beds, the making of window gardens, and for the culture of strawberries and other fruits. The directions are clear and give with sufficient detail the points most useful to the beginner.—H. HASSELBRING.

Das Pflanzenreich.—Part 25 of this work has just appeared[6] and contains a presentation of the Juncaceae by the late Dr. FR. BUCHENAU. The usual full discussion of the various structures of the family and its geographical distribution is followed by a synopsis of the 8 genera, among which the species are distributed as follows: Distichia (3), Patosia (1), Oxychloe (2), Marsippospermum (3), Rostkovia (1), Prionium (1), Luzula (61, of which 2 are new), Juncus (209, of which 5 are new). The whole presentation is remarkably full in details of forms and in illustrations, and is of particular interest to American botanists.—J. M. C.

Index Filicum.—The ninth fascicle of CHRISTENSEN'S work has appeared,[7] carrying the references from *Polypodium Beddomei* to *Polystichum aculeatum.* The great genus Polypodium fills the whole fascicle excepting the last page.—J. M. C.

NOTES FOR STUDENTS.

Plant diseases.—CLINTON,[8] in his report as Botanist of the Connecticut Experiment Station for 1905, presents interesting notes and illustrations of several fungous diseases of plants in that state, followed by a more detailed account of the downy mildew of the lima bean, due to *Phytophthora phaseoli*, and of the downy mildew or blight of the Irish potato, due to *Phytophthora infestans*. The two latter diseases are fully described and illustrated, and citations of the literature of each disease are given.

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[4] In the United States, in Jour. Mycol. **10**:109. 1904.

[5] HEMENWAY, H. D., Hints and helps for young gardeners, a treatise designed for those young in experience as well as youthful gardeners. 8vo. paper. pp. 59. illustrated. Hartford, Conn.: The Author. 1906. 35 cents.

[6] ENGLER. A., Das Pflanzenreich. Heft 25, Juncaceae by FR. BUCHENAU. 8vo. pp. 284. *figs. 121 (777).* Leipzig: Wilhelm Englemann. 1906. *M* 14.20.

[7] CHRISTENSEN, C., Index Filicum, etc. Fasc. 9. Copenhagen: H. Hagerups Boghandel. 1906. 3*s.* 6*d.*

[8] CLINTON, G. P., Report of the Botanist. Rept. Conn. Exp. Stat. **1905**: 263–330. *pls. 13–25. figs. 8–9.* 1906.

WHETZEL[9] gives an illustrated account of the following bean diseases found in New York state: anthracnose, due to *Colletotrichum lindemuthianum*; blight, due to *Bacterium phaseoli;* and rust, due to *Uromyces appendiculatus*. Methods of treatment are also given in each disease.

SHELDON[10] has just published the results of his study of the ripe rot or mummy disease of guavas. This disease is similar in many respects to the ripe rot or bitter rot of apples. It is produced by *Glomerella psidii* (G. Del.) Sheldon. He found the ascigerous stage and worked out the life history of the fungus in considerable detail.

NORTON[11] has published a brief summary of the present knowledge of the diseases of the Irish potato in Maryland together with methods of treatment of these diseases.

STEVENS[12] in his report as Biologist of the Experiment Station of North Carolina gives the results of his experiments in soil treatment for the prevention of the Granville tobacco wilt. He concludes that the greatest hope of overcoming this serious trouble lies in the breeding and selecting of resistant strains of tobacco, and he is now engaged in this line of work.

SMITH[13] presents preliminary observations regarding three serious diseases of tomatoes in California. The first is the damping off of the young seedlings. It is suggested that to check the spread of this trouble the plants and soil be sprayed with weak Bordeaux mixture followed with a sprinkling of sulfur. Soil sterilization by means of live steam would no doubt control it in cases where the application of this remedy is possible. The second disease mentioned is the summer blight, due to a species of Fusarium which attacks the plant in much the same manner as does the fusarium stage of Neocosmospora which causes the wilt of cotton, etc. The third disease mentioned is the winter blight, due to the potato-blight fungus, *Phytophthora infestans*. It occurs only after heavy fogs, dews, or rains, and hence in California attacks only the winter crop. Spraying with Bordeaux mixture is recommended to be applied just after the rains or dews.

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[9] WHETZEL, H. H., Some diseases of beans. Bull. N. Y. Cornell Exp. Stat. 239:195–214. *figs. 100–114*. 1906.

[10] SHELDON, J. L., The ripe rot, or mummy disease of guavas. Bull. W. Va. Exp. Stat. 104:299–315. *pls. 1–4. fig. 1*. 1906.

[11] NORTON, J. B. S., Irish potato diseases. Bull. Md. Exp. Stat. 108:63–72. *figs. 1–4*. 1906.

[12] STEVENS, F. L., Report of the Biologist. Rept. N. Car. Exp. Stat. **1904**: pp. 10. 1905.

[13] SMITH, R. E., Tomato diseases in California. Bull. Calif. Exp. Stat. 175: 1–16. *figs. 1–8*. 1906.

REED[14] has described three fungous diseases of the cultivated ginseng. These diseases are not due to the same fungi reported by VAN HOOK[15] as causing ginseng diseases in New York. The first of these is a stem anthracnose due to *Vermicularia dematium*. The second is a leaf anthracnose due to *Pestalozzia funeria*. These two diseases he finds may be controlled by spraying with the usual Bordeaux mixture. The third disease described is a wilt due to *Neocosmospora vasinfecta nivea*. This same variety causes a wilt disease of the watermelon, while the species itself causes a wilt disease of cotton and the cowpea. REED finds that the wilt never occurs except in association with or following an attack of the stem anthracnose. In other words, the wilt fungus seems to be able to gain entrance to the ginseng plant through the lesions on the stem due to this other stem disease. It is also possible that the wilt fungus enters the plant at the scar left where the stem of the preceding year fell off. It should be recalled in this connection that the cotton and cowpea wilt-fungus enters the host through the roots largely after injury by the nematode worm.—E. MEAD WILCOX.

SORAUER[16] describes a peculiar disease of *Cereus nycticalis* Lk. which results from proliferation of cells of the inner layers of the cortex. This produces on the stems slightly elevated hygrophanous areas which increase in size until they occupy a large part of the stem and extend to the wood. These turn brown and then black and finally collapse, leaving depressed wounds in the stem. On account of the position of the proliferating cells SORAUER designates these growths as "internal intumescences." The diseased regions are almost free from starch, but they are rich in glucose, which the writer regards as the cause of the unusual growth. This condition is brought about by high temperature and excessive moisture. When these factors were changed no "intumescences" were formed. —H. HASSELBRING.

The maturation mitoses.—A critical review of the entire subject of the maturation mitoses in both plants and animals has been prepared by GRÉGOIRE.[17] Part I, dealing with stages from the metaphase of the first mitosis in the mother-cell up to the telophase of the second division, contains 155 pages and 147 text figures, of which 35 pages and 35 figures relate to sporogenesis in plants, 90 pages and 112 figures to spermatogenesis and oogenesis in animals, and the remaining 30 pages to a comparative study. The space given to animal mitoses increases the value of the work to botanists, who are already more or less familiar with the botanical literature. At the close of the botanical section the conclusion

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[14] REED, H. S., Three fungous diseases of the cultivated ginseng. Bull. Mo. Exp. Stat. 69:41–66. *figs. 1–9*. 1905.

[15] VAN HOOK, J. M., Diseases of ginseng. Bull. N. Y. Cornell Exp. Stat. 219: 163–186. *figs. 18–42*. 1904.

[16] SORAUER, P., Zeitr. Pflanzenkrankheiten **16**:5–10. *pl. 2*. 1906.

[17] GRÉGOIRE, VICTOR, Les resultats acquirés sur les cinèses de maturation dans les deux règnes. Premier mémoire. Revue critique de la littérature. La Cellule **22**:221–376. *figs. 147*. 1905.